



UNITED STATES PATENT AND TRADEMARK OFFICE

N ✓
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,066	03/19/2004	Shigeo Takenaka	250628US2S CONT	8251
22850	7590	11/30/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			GUHARAY, KARABI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/804,066	TAKENAKA ET AL.
	Examiner	Art Unit
	Karabi Guharay	2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04 August 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/19/04.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 & 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Fahlen et al. (US 5667418).

Regarding claim 1, Fahlen et al. disclose an image display apparatus (flat panel display, see Fig 1 & Fig 2A) comprising a first substrate (faceplate 102, 202) having an image display surface, a second substrate (backplate 103, 203) arranged opposite to the first substrate with a gap therebetween and provided with a plurality of electron sources (109), a grid (addressing grid 106) provided between the first and second substrate, and having a first surface opposing the first substrate, and a second surface opposing the second substrate and a plurality of beam passage apertures (111) opposing the electron sources a plurality of first spacers (anode spacer 208) which are columnar protrude from the first surface of the grid 206 and abut against the first substrate (faceplate 202), and a plurality of second spacers (cathode spacer 207) which are columnar protrude from the second surface of the grid 206 and abut against the second substrate (backplate 203, line 57 of column 5 - line 13 of column 6), The first spacers (208) having a height (222) lower than the height (223) of second spacers (207, lines 62 of column 6 - line 3 of column 7).

Regarding claim 4, Fahlen et al. disclose that first and second spacers protrude from the respective surfaces of the grid (206) between beam passage apertures and they are in alignment (see Fig 2A).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 6 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fahlen et al. as applied to claim 1 above, and further in view of Anderson et al. (US 5811927).

Regarding claims 2, 6 and 8 Fahlen et al. disclose all the limitations of claims 2, 6 and 8 except for a height buffer layer between first spacer and the first substrate, and having a lower resistance than the first spacers. However, Anderson, in the same field of flat panel display teaches metallic bump bonding for attachment of spacers to the anode substrate, that the spacer (102) comes in contact via a metallic member (height buffer layer 112, having lower resistance than the spacer, since it is metallic compared to dielectric spacer) for perfectly aligning and adjusting the height of the spacer (see abstract, lines 40-51 of column 7).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a metallic bump bonding technique where a height buffer layer, i.e a metallic layer is incorporated between spacer and the substrate,

as taught by Anderson in the device of Fahlen so that it can adjust the heights of all the spacers.

Claims 3 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fahlen et al. as applied to claims 1 & 6 above, and further in view of Dean et al. (US 5720529).

Regarding claims 3 & 7, Fahlen discloses all the limitations of claim 3, while Fahlen and Anderson teach all the limitations of claim 7, except for second spacers (cathode spacers) have a lower surface resistance than a surface resistance of the first spacers (anode spacers).

However, Dean et al., in the same field of field emission display (Fig 2), discloses a resistive coating at the lower end of the spacers (220) which is closer to electron emission cathodes thus increases surface resistance of the spacers near the cathode side compared to the region of spacer (222) close to anode which has insulative, since this will decrease secondary emission of electrons from the spacers (see abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a resistive coating as taught by Dean et al. to the cathode spacers of the Fahlen's device so that the surface resistance is lower compared to anode spacers, since this will reduce the secondary emission of electrons from the spacers.

Claims 5 & 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fahlen as applied to claim 1, and Fahlen & Anderson as applied to claim 6 above, and further in view of Allaway et al. (US 5228877).

Regarding claims 5 & 9 Fahlen and Fahlen and Anderson teach all the limitations of 5 and 9 except they are silent about the surface of the grid and the beam passage apertures are being high resistance treated.

However, in the same field of field emission devices Allaway teaches that the surface of the grid should be treated with high resistance in order to minimize current collection by the grid to stabilize emission from the cathode (lines 64 of column 3-lines 3 of column 4).

Thus, it would have been obvious tone having ordinary skill in the art at the time the invention was made to treat the surface of the grid and the apertures of the grid by high resistance in order to minimize the collection of electrons by the grid as well as stabilize the emission of electrons from the cathode.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of copending

Application No. 10/809718, although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 is anticipated by claim 4 of Appl. # 10/809718.

Claim 2 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 5& 6 of copending Application No. 10/809718, although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 is anticipated by claims 5 & 6 of Appl. # 10/809718.

Claim 3 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 7 of copending Application No. 10/809718, although the conflicting claims are not identical, they are not patentably distinct from each other because claim 3 & 5 are anticipated by claims 7 & 8 of Appl. # 10/809718.

Claim 6 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of copending Application No. 10/809718, although the conflicting claims are not identical, they are not patentably distinct from each other because claim 6 is anticipated by claim 6 of Appl. # 10/809718.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

Art Unit: 2879

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karabi Guharay
Karabi Guharay
Patent Examiner
Art Unit 2879